In the Claims

Please amend the claims as follows:

Claim 1 (original) A photolithographic process sequence for manufacturing MEMS structures from a first material layer of a first-material-layer thickness disposed over and in contact with a second material layer, the sequence comprising:

a. forming a mask over the first material layer, wherein the mask leaves portions of the first material layer exposed;

b. etching the first material layer in the exposed portions to a first depth less than the first-material-layer thickness, wherein the masked portions form a raised pattern defined by recessed areas formed in the exposed portions;

c. removing at least a portion of the mask, leaving at least a portion of the raised pattern and the recessed areas exposed; and

d. etching the exposed raised pattern and recessed areas of the first material layer until the second material layer is exposed in the recessed areas, leaving the pattern affixed to the second material layer.

Claim 2 (currently amended) The method of claim 1, wherein the pattern comprises first and second portions and wherein forming the mask comprises:

a. forming a first sub-mask defining the first portion of the pattern; and

e. forming a second sub-mask over the first sub-mask, the

second sub-mask defining the second portion of the pattern.

Claim 3 (currently amended) The method of claim [[1]] 2, wherein removing at least a portion of the mask comprises removing the second sub-mask.

Claim 4 (original) The method of claim 3, wherein the second sub-mask comprises photoresist.

Claim 5 (original) The method of claim 1, further adapted to manufacture a second collection of MEMS structures from a third material layer of a third-material-layer thickness, the sequence further comprising:

a. forming a second mask over the third material layer, wherein the second mask leaves portions of the third material layer exposed;

b. etching the third material layer in the exposed portions of the third material layer to a second depth less than the third-material-layer thickness, wherein the masked portions of the third material layer form a second raised pattern defined by recessed areas formed in the exposed portions of the third material layer;

c. removing at least a portion of the second mask, leaving at least a portion of the second raised pattern and the recessed areas in the third material layer exposed; and

d. etching the exposed second raised pattern and recessed areas in the third material layer to remove the material in the recessed areas of the third material layer.

Claim 6 (original) The method of claim 5, wherein substantially all of the material in the recessed areas of the third material layer is removed.

Claim 7 (original) The method of claim 5, wherein the second material layer is disposed between the first material layer and the third material layer.

Claim 8 (original) A photolithographic method of patterning a first material layer over a second material layer, the first material layer being of a thickness and having a first surface in contact with the second material layer and a second surface, the method comprising:

a. forming a mask over the second surface of the first material layer, wherein the mask leaves portions of the second surface exposed;

b. etching the first material layer in the exposed portions to a first depth less than the thickness of the first material layer, wherein the masked portions form a raised pattern defined by recessed areas formed in the exposed portions;

c. removing the mask, leaving the raised pattern and the recessed areas exposed; and

d. etching the raised pattern and recessed areas of the first material layer until the second material layer is exposed in the recessed areas, leaving the pattern affixed to the second material layer.

Claim 9 (original) The method of claim 8, wherein the first

material layer comprises a semiconductor.

Claim 10 (original) The method of claim 9, wherein the second material layer comprises an insulator.

Claim 11 (original) The method of claim 8, wherein the first material later comprises a semiconductor, and wherein the second material layer comprises an insulator.

Claim 12 (original) The method of claim 8, wherein the mask comprises a semiconductor.

Claim 13 (original) The method of claim 8, wherein at least one of the etchings are accomplished using a reactive ion etch process.

Claim 14 (original) A micro-machining method for patterning a first material layer over a second material layer, the first material layer being of a thickness and having a first surface in contact with the second material layer and a second surface, the method comprising:

a. forming a first mask over the second surface of the first material layer, wherein the first mask leaves portions of the second surface exposed;

b. etching the first material layer in the exposed portions to a first depth less than the thickness of the first material layer, wherein the masked portions form a raised pattern defined by recessed areas formed in the exposed portions;

c. forming a second mask over a first portion of the

raised pattern, leaving a second portion of the raised pattern and the recessed areas exposed; and

d. etching the second portion of the raised pattern and recessed areas of the first material layer until the second material layer is exposed in the recessed areas, leaving the pattern affixed to the second material layer, wherein the second mask protects the first portion of the raised pattern from the etching of (d), leaving the second portion of the raised pattern thinner than the first portion of the raised pattern.

Claim 15 (original) The method of claim 14, wherein the second mask comprises at least a portion of the first mask.

Claim 16 (original) The method of claim 14, wherein the first mask comprises photoresist.

Claim 17 (original) The method of claim 14, wherein the first material layer comprises a semiconductor and the second material layer comprises an insulator.

Claim 18 (original) The method of claim 14, further comprising removing at least a portion of the second material layer.

Claim 19 (new) A micro-machining method for patterning a material layer, the material layer being of a thickness and having a first surface and a second surface, the method comprising:

a. forming a first mask layer over the first surface of the material layer, wherein the first mask layer defines first masked portions of the first surface and

first exposed portions of the first surface;

b. forming a second mask layer over areas of the first exposed portions of the first surface, wherein the second mask layer defines second masked portions and second exposed portions of the first surface in the areas of the first exposed portions of the first surface;

c. etching the material layer in the first and second exposed portions of the first surface to a first depth less than the thickness of the material layer, wherein the first and second masked portions form a raised pattern in the material layer;

d. removing the second mask layer; and

e. etching the material layer until the material layer is etched through, leaving the raised pattern.

Claim 20 (new) The method of claim 19, wherein the thickness is between about 20 and 100 microns.

Claim 21 (new) The method of claim 19, wherein the first mask layer defines comb teeth and the second mask layer defines hinges.

Claim 22 (new) The method of claim 19, wherein the second mask layer is removed after the material layer is etched to the first depth.

Claim 23 (new) The method of claim 19, wherein the material layer is formed over and in contact with a second material layer.

Claim 24 (new) The method of claim 23, wherein the first-mentioned material layer is electrically conductive and the second material layer electrically insulating.

In the Figures

Please amend Figure 1 as indicated in red ink on the attached sheet. The amendment is difficult to illustrate in red ink, so the following discussion highlights the change with magnified reproductions of the amended features.

Please amend Figure 33A as indicted in red in on the attached sheet.

Applicant also includes herewith substitute sheets with corrections made, and requests the examiner kindly forward the substitute sheets to the official draftsperson if the changes meet with the examiner's approval.